WHAT IS CLAIMED IS:

1. A reciprocating saw, comprising a main body, a blade holding device mounted on the main body, and a blade detachably mounted on the support seat of the main body by the blade holding device, wherein:

the main body has a side provided with a support seat having a first end formed with a locking hole and a second end formed with a receiving hole;

the blade has an end formed with a positioning hole;

the blade holding device includes a bushing, a slide, a sleeve, a positioning ball, a torsion spring, and a guide rod, wherein:

the bushing is secured on the support seat of the main body and has an inner wall formed with a longitudinal slide slot and a periphery formed with a longitudinal guide slot communicating with the slide slot;

the slide is slidably mounted in the slide slot of the bushing and has a side formed with an arcuate concave urging face;

the sleeve is rotatably mounted on the bushing and has a first end having a periphery formed with a helical guide groove and a second end having a periphery formed with an arc-shaped retaining groove, the first end of the sleeve has an end face formed with a locking hole;

the positioning ball is movably mounted in the receiving hole of the support seat of the main body and has a first side urged by the urging face of the slide and a second side locked in the positioning hole of the blade;

the torsion spring is mounted on the support seat of the main body and has a first end inserted into the locking hole of the main body and a second end inserted into the locking hole of the sleeve; and

the guide rod is extended through the guide groove of the sleeve, the guide slot of the bushing and the slide.

2. The reciprocating saw in accordance with claim 1, wherein the slide slot of the bushing has a width greater than that of the guide slot.

3. The reciprocating saw in accordance with claim 1, wherein the urging face of the slide has a first end formed with a first urging portion and a second end formed with a second urging portion.

4. The reciprocating saw in accordance with claim 3, wherein the second urging portion of the urging face of the slide has a depth greater than that of the first urging portion.

5. The reciprocating saw in accordance with claim 3, wherein when the sleeve is rotated relative to the bushing in one direction, the guide groove of the sleeve is rotated by rotation of the sleeve, so that the guide rod is urged by the guide groove of the sleeve to move in the guide slot of the bushing in a linear manner, and the slide is driven by movement of the guide rod to move in the slide slot of the bushing in a linear manner, so that the slide is moved to a position where the positioning ball is rested on the second urging portion of the urging face of the slide and is detached from the positioning hole of the blade.

6. The reciprocating saw in accordance with claim 5, wherein the sleeve is rotated relative to the bushing in an opposite direction by the restoring force of the torsion spring, and the guide groove of the sleeve is rotated by rotation of the sleeve, so that the guide rod is urged by the guide groove of the sleeve to move in the guide slot of the bushing in a linear manner, and the slide is driven by movement of the guide rod to move in the slide slot of the bushing in a linear manner, such that the slide is moved to a position where the positioning ball is urged by the first urging portion of the urging face of the slide and is locked in the positioning hole of the blade.

7. The reciprocating saw in accordance with claim 1, wherein the blade holding device further includes a pin extended through the retaining groove of the sleeve, the bushing and the support seat of the main body, so that the bushing is secured on the support seat of the main body, and the sleeve is rotatably mounted on the bushing.

8. The reciprocating saw in accordance with claim 1, wherein the slide has an end formed with a through hole for passage of the guide rod.